

What is claimed is:

- 1 1. A degradable prepolymer for explosive and propellant compositions having
2 increased hydrolyzability comprising at least one -O-CH₂-O- linkage within the
3 backbone of the prepolymer.
- 1 2. The degradable prepolymer of claim 1, wherein the prepolymer comprises a non-
2 energetic material.
- 1 3. The degradable prepolymer of claim 1, wherein the prepolymer comprises a
2 molecular weight of from about 2000 to about 10,000.
- 1 4. The degradable prepolymer of claim 1, wherein the prepolymer comprises monomer
2 units of from about 300 to about 1000 molecular weight.
- 1 5. The degradable prepolymer of claim 1, wherein the prepolymer comprises monomer
2 units of from about 400 to about 500 molecular weight.
- 1 6. The degradable prepolymer of claim 1, wherein the prepolymer comprises from about
2 two to about ten -O-CH₂-O- linkages within the backbone of the prepolymer.
- 1 7. The degradable prepolymer of claim 6, wherein the prepolymer comprises from about
2 five to about eight -O-CH₂-O- linkages within the backbone of the prepolymer.
- 1 8. The degradable prepolymer of claim 1, wherein the prepolymer comprises a hydroxy-
2 terminated prepolymer.
- 1 9. The degradable prepolymer of claim 1, wherein the prepolymer comprises poly(PEG-

- 2 400 formal).
10. The degradable prepolymer of claim 1, wherein the prepolymer comprises poly(PCL-500 diol formal).
11. The degradable prepolymer of claim 1, wherein the prepolymer comprises a functionality of from about 1.7 to about 2.3.
12. The degradable prepolymer of claim 1, wherein the prepolymer comprises a functionality of approximately 2.
13. A binder comprising a reacted degradable prepolymer of claim 1.
14. An explosive composition comprising a reacted degradable prepolymer of claim 1.
15. A propellant composition comprising a reacted degradable prepolymer of claim 1.
16. A degradable polymer product formed by the process comprising the steps of:
providing a degradable prepolymer for explosive and propellant compositions having increased hydrolyzability comprising at least one -O-CH₂-O- linkage within the backbone of the prepolymer; and,
curing the degradable prepolymer with a polyisocyanate mixture.
17. The degradable polymer product of claim 16, wherein the polyisocyanate mixture comprises Desmodur N-100.
18. The degradable polymer product of claim 16, wherein the polyisocyanate mixture comprises a plurality of polyisocyanates.

- 1 19. A degraded polymer product formed by the process comprising the steps of:
2 providing a degradable prepolymer for explosive and propellant compositions having
3 increased hydrolyzability comprising at least one -O-CH₂-O- linkage within the backbone
4 of the prepolymer; and,
5 reacting the degradable prepolymer with a degrading chemical composition.
- 1 20. The degraded polymer product of claim 18, wherein the degrading chemical
2 composition comprises a dilute acid composition.

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